

WHAT IS CLAIMED IS:

1. An image display apparatus comprising an image signal generating unit for generating an image signal and an image display element for displaying an image on 5 a screen according to the image signal inputted from the image signal generating unit,

wherein when the screen is divided into a portion in which the image is displayed and a dark display portion in which no image is displayed, non-dark 10 display is performed in the dark display portion for a very short time period from a start time of display control until a start time of a process for terminating the display control.

15 2. An image display apparatus according to Claim 1, wherein the image display element includes a plurality of modulation target units that are two-dimensionally arranged.

20 3. An image display apparatus according to Claim 1, wherein the image display element performs binary display.

25 4. An image display apparatus according to Claim 3, wherein the non-dark display is an image reversal.

5. An image display apparatus according to Claim

Image Sequence

1, wherein the non-dark display is performed a plurality of times from the start time of the display control to the start time of the process for terminating the display control.

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6. An image display apparatus according to Claim 5, wherein the non-dark display is cyclically performed.

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7. An image display apparatus according to Claim 5, wherein the non-dark display is performed each time several field periods have passed.

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8. An image display apparatus according to Claim 1, wherein the image is displayed by sequentially irradiating the image display element with light in various colors and switching images in the colors displayed by the image display element in synchronization with the light irradiation, and

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the non-dark display is performed in a display period assigned to a specific color.

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9. An image display apparatus according to Claim 1, wherein the image display element performs binary display, and

the non-dark display is performed for a signal corresponding to a low gradation.

10. An image display apparatus according to Claim 1, wherein the non-dark display is cyclically performed at a frequency lower than a screen refresh frequency of the image display element.

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11. An image display apparatus according to Claim 1, wherein the non-dark display is cyclically performed at a frequency of 50Hz or higher.

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12. An image display apparatus according to Claim 1, wherein the image signal transmitted from the image signal generating unit to the image display element is a pulse-width-modulated signal, and

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the image display element is driven by the pulse-width-modulated signal and displays a gradation image.

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13. An image display apparatus according to Claim 1, wherein a difference in aspect ratio between the image to be displayed and the screen causes the division of the screen into the portion in which the image is displayed and the portion in which no image is displayed.

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14. An image display apparatus according to Claim 1, wherein the screen is divided into a plurality of sub-screen areas in each of which an image is displayed, and the portion in which no image is

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displayed.

15. An image display apparatus according to Claim 1, wherein the image display element is a spatial modulation element that uses a liquid crystal.

16. An image display apparatus according to Claim 1, wherein the image display element is a spatial modulation element of an MEMS type.

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17. An image display apparatus according to Claim 1, wherein the image display element is a spatial modulation element in which micromirrors are arranged.

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18. An image display apparatus according to Claim 1, wherein the image display element is an LED.

19. An image display apparatus according to Claim 1, wherein the image display element is a display element of a self light emitting type.

20. An image display apparatus comprising an image signal generating unit for generating an image signal and an image display element for displaying an image on a screen according to the image signal inputted from the image signal generating unit, wherein when the screen is divided into a portion

in which gradation display is performed and a bright display portion in which the gradation display is not performed, bright display is continuously performed while dark display is performed for a very short time 5 period in the bright display portion from a start time of display control until a start time of a process for terminating the display control.

21. An image display apparatus according to Claim 10 20, wherein the image display element is an element of an MEMS type.

22. A method of driving an image display apparatus that displays an image by inputting an image 15 signal generated by an image signal generating unit into an image display element,

the driving method comprising:

a step for displaying a multi-level gradation image in a predetermined area of a screen and 20 performing dark display in another predetermined area of the screen, and

a step for performing non-dark display in the other predetermined area for a moment from a start time of display control to a start time of a process for 25 terminating the display control.

23. An image display apparatus comprising an

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image signal generating unit for generating an image signal and an image display element for displaying images on a screen by performing bright display and dark display according to the image signal inputted
5 from the image signal generating unit,

wherein when the screen is divided into an effective image area in which various images are displayed and a non-effective image area in which no image is displayed, dark display is continuously
10 performed while bright display is performed for a very short time period in the non-effective image area.

24. An image display apparatus according to Claim 23, wherein a total effective time of the bright
15 display accounts for a proportion exceeding 0% but not exceeding 20% of an entire display period.

25. An image display apparatus according to Claim 23, wherein the image display element is a spatial
20 modulation element of an MEMS type.

26. An image display apparatus according to Claim 23, wherein the image display element includes a micromirror for each pixel, the micromirror being
25 disposed so as to selectively take one of a first position and a second position, and
the dark display is performed when the micromirror

takes the first position, and the bright display is performed when the micromirror takes the second position.

5 27. An image display apparatus according to Claim 23, further comprising a lighting device for emitting light toward the image display element, wherein the image display element has a narrow and long shape, and

10 the images are displayed by scanning light reflected by the micromirror.

15 28. An image display apparatus according to Claim 23, wherein the image display element has a wide shape, and a lighting device emits light toward the image display element.

20 29. An image display apparatus according to Claim 23, wherein a difference in aspect ratio between the images to be displayed and the screen causes the division of the screen into the effective image area and the non-effective image area.

25 30. An image display apparatus according to Claim 23, wherein the image signal transmitted from the image signal generating unit to the image display

element is a pulse-width-modulated signal, and
the image display element is driven by the pulse-
width-modulated signal and displays a gradation image.

5 31. An image display apparatus according to Claim
23, wherein a plurality of effective image areas are
generated on the screen.

10 32. An image display apparatus according to Claim
23, wherein a display color and a gradation level in
the non-effective image area are adjustable.

15 33. A method of driving an image display
apparatus that displays images on a screen by
performing bright display and dark display according to
an image signal that is generated by an image signal
generating unit and is inputted into an image display
element,

20 wherein when the screen is divided into an
effective image area in which various images are
displayed and a non-effective image area in which no
image is displayed, dark display is continuously
performed while bright display is performed for a very
short time period in the non-effective image area.

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34. A driving method according to Claim 33,
wherein a total effective time of the bright display

accounts for a proportion exceeding 0% but not exceeding 20% of an entire display period.

35. A driving method according to Claim 33,
5 wherein the bright display is cyclically performed.

36. A driving method according to Claim 33,
wherein the bright display is cyclically performed each
time several field periods have passed.

10 37. A driving method according to Claim 33,
wherein the bright display is cyclically performed at a
frequency lower than a screen refresh frequency of the
image display element.

15 38. A driving method according to Claim 33,
wherein the bright display is cyclically performed at a
frequency of 50Hz or higher.

20 39. A driving method according to Claim 33,
wherein the image signal transmitted from the
image signal generating unit to the image display
element is a pulse-width-modulated signal, and
the image display element is driven by the pulse-
width-modulated signal and displays a gradation image.

25 40. A driving method according to Claim 33,

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wherein full color display is performed by sequentially irradiating the image display element with light in various colors and switching images in the colors displayed by the image display element in synchronization with the light irradiation, and
5 the bright display is performed in a display period assigned to a specific color.

41. A driving method according to Claim 40,
10 wherein the display period assigned to the specific color is a period during which blue display is performed.